# THE EFFECT OF ALOEVERA GEL ON THROMBOPHLEBITIS AMONG PATIENTS RECEIVED INTRAVENOUS THERAPY SELECTED HOSPITAL AT TIRUKOVILUR

A Dissertation submitted to

**THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY**

**CHENNAI**

In partial fulfillment of the requirement for the award of degree of

**MASTER OF SCIENCE IN NURSING**

**OCTOBER 2018**

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Certified that this is the bonafide work of

**Reg. No: 301611703**

**MEDICAL AND SURGICAL NURSING**

**THANTHAI ROEVER COLLEGE OF NURSING**

**PERAMBALUR**

**COLLEGE SEAL :**

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_____ _____

**INTERNAL EXAMINER** **EXTERNAL EXAMINER**

# DECLARATION

**I, 301611703** hereby declare that this dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS OF ALOEVERA GEL APPLICATION ON THROMBOPHLEBITIS AMONG PATIENTS RECEIVED INTRAVENOUS THERAPY SELECTED HOSPITAL AT TIRUKOVILUR"** has been prepared by me under the guidance and direct supervision of **Prof. R. PUNITHAVATHI, M.Sc., (N)** Principal, Thanthai Roever College Of Nursing, Perambalur, as requirement for partial fulfillment of M.Sc. Nursing degree course under **The Tamilnadu Dr. M.G.R. Medical University, Chennai.** This dissertation had not been previously formed and this will not be used in future for award of any other degree or diploma. This dissertation represents an independent original work on the part of the candidate.

Place: Perambalur,
Date: October – 2018.

301611703,
II Year M.Sc (N) Student,
Thanthai Roever College of Nursing,
Perambalur.

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# THE EFFECT OF ALOEVERA GEL APPLICATION ON THROMBOPHLEBITIS AMONG PATIENTS RECEIVED INTRAVENOUS THERAPY SELECTED HOSPITAL AT TIRUKOVILUR.


## ABSTRACT

**INTRODUCTION:**

In the modern medical practice up to 80% of the hospitalized patients receive intravenous infusion therapy at some time during their admission. Maintaining patients vascular access throughout treatment is difficult because a number of complications including phlebitis, infiltration, extravasation and infections can occur. The aim of the study is to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy.

**METHOD**

Study design was true experimental pre-test and post test control group design. Sixty individuals with thrombophlebitis were recruited by simple random sampling technique into two groups and pre test assessment was done. Experimental group (N=30) received Aloevera gel application is the intervention over the site of thrombophlebitis for 15 minutes twice a day for 3 days. Post test was done with the modified Visual Infusion Phlebitis Scale on the fourth day for both groups.

**RESULTS**

Statistical findings revealed that the post test mean score of thrombophlebitis in experimental group was 6.4±1.2 whereas in the control group it was 8.6±1.2. The mean difference was 2.2 and the calculated un paired 't' value 6.79 was found statistically significant at $p < 0.001$ level.

**CONCLUSION**

The use of Aloevera gel application is found effective in reduction of thrombophlebitis among patient received intravenous therapy.

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# CHAPTER - I

## INTRODUCTION

In the modern medical practice up to 80% of the hospitalized patients receive intravenous infusion therapy at some time during their admission. The peripheral venous catheterization is a commonly done invasive procedure to administer medications, fluids and bio products. The most common complication associated with it is thrombophlebitis with the incidence varying according to different settings from 3.7% to 67.24%.

Despite the growing frequency of intravenous injections, establishing peripheral intravenous access is challenging, particularly in patients with small or collapsed veins. Therefore patients often endure failed attempts and eventually become venous depleted. Furthermore, maintaining patient's vascular access throughout treatment is difficult because a number of complications including phlebitis, infiltration, extravasation and infections can occur.

Phlebitis causes a cascade of unwelcome repercussions-significant pain, failure of the peripheral intravenous cannulation, interruption to prescribed therapy and requirement for insertion of a new peripheral intravenous cannulation with associated increased equipment costs and staff time. Phlebitis compromises future venous access and untreated bacterial phlebitis may lead to blood stream infection. Phlebitis may be localized to the insertion site or travel along the vein if extravasations also called infiltration of fluids in the interstitial space occurs. Prevention of phlebitis can be facilitated by such steps as catheter selection, indwelling securing catheters, training of clinicians, proper care and maintenance, and appropriate preparation and administration of the intravenous solutions and fluids.

Aloevera gel has anti-inflammatory agent gibberlin and polysaccharides which effectively decrease inflammation and promote healing. It relieves pain as it contains salicylic acid and ligin which helps to penetrate deeply into skin to deliver its therapeutic effects. Most of the nursing interventions fit comfortably within the realm of the natural therapy's the illness healing paradigm shift and coverage, and role of nurses shifts can give to the healer.

**NEED FOR THE STUDY**

Infusion phlebitis has become one of the most common complication in patients with intravenous therapy. It requires manual dexterity and technical competence, knowledge of pharmaceutical therapy and familiarity with the anatomy & physiology of the vascular system. However the effects of routine treatment such as external application are unsatisfactory therefore new methods to discover and implement to prevent and alleviate infusion phlebitis.

A fascination with phlebitis has motivated nurses to examine their practice in regard to intravenous catheter management. As a result three main ideas has evolved. A component of the education of nurses on intravenous therapy needs to be dedicated to the possible complications associated with intravenous catheters uses, so that all nurses have exposure to this information at their beginning level. Intravenous therapy should be included in a facility risk management program. Finally, nurses have been encouraged to focus on the patient experience in phlebitis.

Although the Infusion Nurses Society standards recommend that the vascular access site should be monitored for 48 hours following removal of catheter to identify complication little is known about the incidence of post infusion phlebitis. It is essential for nurses able to identify patients who are at

risk of developing phlebitis. In turn early recognition will enable prompt intervention, minimising disruption to treatment.

**Villacampa (2008)** reviewed a national multicentric epidemiological study having the institutional participation of 10 centres in Spanish. In the study 381 complications appeared in 2701 peripheral catheters studied, which represents an incidence level of 14.11%. This study proved that the implementation strategy to improve the quality care reduces complications such as persistent pain at the entrance point, extravasations or edema, varying degree phlebitis and infection associated with catheters.

The quality of care received in the hospital was often reflected in client care maintenance of peripheral intravenous cannula and removal of peripheral cannula was an integral component of nursing care. Nurses need to be equipped with current interventional skills to prevent and treat complications.

The current standard medical therapy for thrombophlebitis is topical heparin application for 7 days from day 1 of intravenous cannula insertion. Interventions for thrombophlebitis include thrombophob ointment, Icthomal and glycerine paste application, hot and cold application. The researcher is interested to evaluate the effectiveness of aloeveragel on thrombophlebitis.

## STATEMENT OF THE PROBLEM

**A study to assess the effectiveness of aloevera gel application on thrombophlebitis among patients received intravenous therapy in selected hospital at Tirukovilur.**

## OBJECTIVES

1. To assess the level of thrombophlebitis among patients received intravenous therapy.
2. To assess the effectiveness of aloevera gel application on thrombophlebitis among patients received intravenous therapy.
3. To find the association between the post test level of thrombophlebitis among patients received intravenous therapy with their selected demographic variables.

## RESEARCH HYPOTHESES

**H1:** There is a significant reduction in thrombophlebitis among patients received intravenous therapy after aloeveragel application.

**H2:** There is a significant association between the post test level of thrombophlebitis among patients received intravenous therapy and their selected demographic variables.

## OPERATIONAL DEFINITIONS

### EFFECTIVENESS

It refers to determining the extent to which the local aloevera gel application relieves the sign and symptoms of thrombophlebitis as measured by Visual Infusion Phlebitis scale.

### ALOEVERA GEL

A topical external application of aloevera gel in mashed form covered by gauze over the site of thrombophlebitis for 15 minutes twice a day for 3 days.

**THROMBOPHLEBITIS**

It refers to inflammation of lining of the vein after intravenous cannulation and continuous exposure to intravenous fluid and medication characterized by pain, cord like swelling, warmth, redness and tenderness along the course of the vein.

**PATIENTS WITH THROMOPHLEBITIS**

It refers to the individual who is admitted in the hospital developed thrombophlebitis after intravenous therapy which will be assessed by using modified Visual Infusion Phlebitis score.

**INTRAVENOUS THERAPY**

It is the administration of Intravenous fluids, medications and or blood via an Intravenous cannula for therapeutic purpose.

**ASSUMPTIONS**

1. Intravenous cannulation and administration of drugs or fluids cause thrombophlebitis.
2. Thrombophlebitis produces discomfort at the site of intravenous cannulation.
3. Application of aloevera gel reduces thrombophelibitis.

**DELIMITATIONS**

1. Patients who are admitted in Medical/Surgical wards only during the study period.
2. The sample size of the study is limited to 60 adults.
3. The study period is delimited for 4 weeks for data collection.
4. Setting is limited to one setting.

**PROJECTED OUTCOME**

The findings of the study will help the nurses to implement fresh Aloeveragel application to reduce the discomfort of patient with thrombophlebitis.

# CHAPTER - II

## REVIEW OF LITERATURE

Review of literature can help to clarify a problem, justify research for the proposed problem, throw light on appropriate methodology and contribute towards the development of a conceptual framework.

## PART – I

The investigator has discussed the literature review in the following sections.

**SECTION A:** review of literature related to thrombophlebitis in general.

**SECTION B:** review of literature related to treatment of thormbophlebitis.

**SECTION C:** review of literature related to Aloevera gel application in reducing thrombophlebitis.

### SECTION A - review of literature related to thrombophlebitis in general

**Powell (2008)** conducted a retrospective study to determine the relationship behaviour between peripheral IV catheters indwell time and the incidence of thrombophlebitis. Thrombophlebitis rating site and tubing labels was performed on 1161 sites. Only 679 had documented indwell time to use. Average indwell time was 2 days and overall phlebitis was 3.7% however asymptomatic peripheral intravenous catheter need not to be removed by regular intervals because they were healthy.

**Jackie Hart (2007)** conducted a study in identifying IV infusion site phlebitis in British internal medicine department of a tertiary teaching hospital, with 308 short lines and 307 midsized lines and 151 long lines. The

overall phlebitis rate was 39% Phlebitis developed in 53% of patients with short lines, 41% of patients with midsized lines, and 10% of patients with long lines, and these catheters remained in place an average of 3.0 ± 2.4 days, 4.6 ± 3.4days and 7.8 ± 6.6 days, respectively.

**Singh.R, et al. (2007)** carried out a study on peripheral IV catheter related thrombophlebitis on 230 patients in University School of Medical Sciences Nepal. The incidence rate of phlebitis rise sharply after 36 hours of catheter insertion. The sites were examined using Jackson standard visual phlebitis scale once a day. Thrombophlebitis developed on 136 patients per 230 patients ie 59%. Increased rates of infusion related phlebitis were associated with males compared with females.

**Benin.V Chacko (2007),** conducted a comparative study in identifying the complications of catheters in an University affiliated hospital in England. In the study three hundred and fifty three intravascular catheters were implanted in 315 patients of a total number of 1, 838 hospitalized patients out of the 353 intravascular catheters, 26 (7.3%) were intra – arterial, 273 (77.3%) were peripheral, and 54 (15.3%) were central. The median range duration of the catheterization was 3 days for arterial catheter, and 5 days of central catheters. 53 showed signs of infection. Independent risk factors associated with the presence of infection located elsewhere odds ratio = 8.7, ci=4.13 - 18.3, $p<0.001$ inappropriate length of catheter use or = 3.5, ci=1.4 - 9.02, $p < 0.01$ and duration of hospitalization exceeding 14 days.

**SECTION B - review literature Related To Treatment of Thormbophlebitis**

**Chinnamma Verghese (2005),** conducted a study on prevention and reduction of pain, bruise and hematoma by moist ice pack application on the site of thrombophlebitis. The sample size consists of 100 thrombophlebitis

each in experimental and control group respectively. Recognizing the physiological response of the cells/ tissue to injury or trauma the moist ice pack procedure was performed for 5 minutes at the site twice daily for three days in experimental group. Results were statistically significant in favour of the use of moist ice pack while comparing control group.

**Gouping Zhang (2003),** investigated the curative effects of notoginsey cream versus heparinoid cream in the treatment of post infusion thrombophlebitis. In this study 65 patients who received peripheral infusion therapy during a 20 month/period and had developed phlebitis were divided randomly into two groups. Group A was treated with notoginsey cream, a topical Chinese medicine developed and produced by the pharmacological department group B treated with heparinoid cream. The findings revealed that significantly application of notoginsey cream were required bring about the dis appearance of signs and symptoms of phlebitis in the group A patients as compared with the group B patients for the same effects the actual time of disappearance of the signs and symptoms of phlebitis also were significantly shorter in patients related with notoginsey cream than with heparinoid cream.

**Desanchis (2001),** conducted a randomized, placebo - controlled study to evaluate the effect of local treatment with essavengel, in comparison with a group of controls in 23 patients with superficial thrombophlebitis of the arms. Superficial thrombophlebitis was consequent to infusional treatment with an intravenous catheter. The 4 week study evaluated the average skin temperature and an analogue symptomatic score. The study revealed that patients treated with actively essaven gel, had decreased score and in composite skin temperature was significant larger than in placebo and control group. Conclusion of this study was that essavengel in arm superficial thrombophlebitis improves signs, symptoms and decrease in skin temperature faster.

**Becherucci (2000),** observed a reduction of signs and symptoms intensity in 60 % of participant of both diclofenac groups, compared to 20% of those in the control group. (for both diclofenac group versus control RR. 3.00; 95% CI 1.54 to 5.86; analysis 4.1). The MD in reduction from base line was – 5.58 (95 % CI -7.38 to - 5.78; analysis 4.2) in the topical diclofenac versus no intervention.

**Huang Haping, Chen Yang (2005),** conducted a comparative study to discuss the effect of dexamethasone and lidocaine normal saline on reducing phlebitis caused by navelbine (NVB) chemotherapy. The dexamethasone and lidocaine to venous was given in experimental group, while the control group with intravenous dripped physiological saline 0.9% and dexamethasone 5mg on reduction of phlebitis. The experimental group phlebitis was 13.33% average duration 4.4 ± 0.42 days, the control group was 36.67 % average duration 6.68 ± 0.76 days.

**Anjum S (2007),** a quasi-experimental study was conducted on "the effectiveness of hot fomentation v/s cold compress for reducing intravenous infiltration" in a selected hospital in Pune city. Pre-test and post-tests were conducted in a sample of 60. Data collection tools included an observational check list which consisted of standardized infiltration scale and behavioural pain scale. Findings proved that the pre treatment mean score of degree of infiltration was 7.1667 and it was decreased to 0.7071 on the 3$^{rd}$ day of treatment with hot fomentation. The pre-treatment mean score of degree of infiltration was reduced from 6.9333 to 0.7571 on the third day of treatment with cold compress treatment. The intensity of pain was reduced from severe (56.66%) to no pain (93.4%) in hot fomentation group. In cold compress group, the intensity of pain was reduced from reduced from moderate (60%) to no pain (86.6%). The mean score of hot fomentation group was 6.5067 in reducing the degree of infiltration while cold compress the mean score was 6.6. It proved that the hot fomentation is better than the cold compress.

**SECTION C - review of literature related to Aloevera gel application in reducing thrombophlebitis.**

**Kang Kaew (2007),** conducted a systematic review to determine the efficacy of topical aloevera for the treatment of thrombophlebitis in a Thailand hospital among 371 patients. The aloevera gel was applied for period based on an analysis using duration on healing as an outcome, the healing time in Aloevera group was faster than the control group (p=0.006) Hence, the researcher concluded that Aloevera was effective intervention used in thrombophlebitis.

**Hu Huali et al (2006),** conducted a study to assess the effectiveness of fresh Aloevera to prevent phlebitis in malignant patients receiving chemotherapy in the department of cancer in Jinghuaguagfu hospital, China. 1510 cases were standardized in experimental and 1510 in control group. Fresh Aloevera was placed 2cm above the infusion site and fixed with plaster and for every 2 hours it is replaced. The incidence of phlebitis was 3.50% in experimental group and in control group it was 28.53 %. Applying fresh Aloevera was effective in prevention of phlebitis.

**Winchers (2005),** conducted a prospective study in a Netherland hospital for treatment of superficial thrombophlebitis with Aloevera gel in relieving the local pain, swelling and redness. In this 116 patients were selected with thrombophlebitis and Aloevera gel was applied for a period of 3 days and the efficacy of Aloevera was recorded. There was a drastic improvement in patient received Aloevera gel as treatment than the control group.

**Quartin (2003),** conducted a double blind evaluation of Aloevera gel topical effect to reduce pain and edema on inflammatory conditions like thrombophlebitis for patients who were on intravenous infusions. In this study

56 patients were selected who received intravenous infusion and assessment was done with the Visual Infusion Phlebitis score. Aloevera gel was applied to the experimental group, for a period of 3 days then the post test score was taken. Statistical analysis showed that pain, edema and severity of inflammation was reduced for the experimental group and it was statistically significant at ($p=0.01$).

**Chowchen (1995)** conducted a comparative study on effect of Aloevera to reduce pain edema due to thrombophlebitis were selected in experimental group they were treatment with Aloevera gel compared with twenty seven with Vaseline gauze, In experimental group statistical analysis by using t test and the value $p<0.001$ was statistically significant. This study shows the effectiveness of Aloevera gel of inflammatory conditions were greater than the control Vaseline gauze.

# PART II - CONCEPTUAL FRAME WORK

The conceptual frame work for the study was based on general system theory developed by **Ludwig von Bertalanffys in 1968.** This system theory explains dividing the whole thing in two parts and working together of these parts in system. According to this model, a system set of objects which are related between themselves and their attributes. The object contributing to the system behaves together as a whole. Changes in any part will affect whole system. All living system or open systems which means that they exchange energy matter and information across their boundaries with the environment general system theory consist of scientific explanation whole or wholeness; it has its sub system. The main concepts of sub system are input, through put, output. Input and output are the process by which a system is able to communicate and react with its environment.

## INPUT

Refers to matter, energy and information enters in to the system and its boundary. In this study, input consists of demographic variables of age, gender, diet pattern, habits, body mass index, ambulation, veincannulated, size of cannula, duration of cannulation, arm of cannulation, intravenous cannulation done by, frequency of medication, history of chronic vascular disease and existing status of thrombophlebitis measured by modified Visual Infusion Phlebitis Scale by observation.

## THROUGHPUT

Is a process that occurs at some point between the input and output process. It enables the input to be transformed in such a way that it can be readily acted by the system. In this study through put was considered as intervention of Aloevera gel application for 15 minutes morning and evening for three days over thrombophlebitis site.

**OUTPUT**

Is an energy, information (or) matter that is transformed to the environment. Change in status of thrombophlebitis in term of pain, swelling, warmth, redness and tenderness after Aloevera gel application. This output was evaluated by the post test observation after treatment. This is ultimately resulting in the improvement of quality of care.

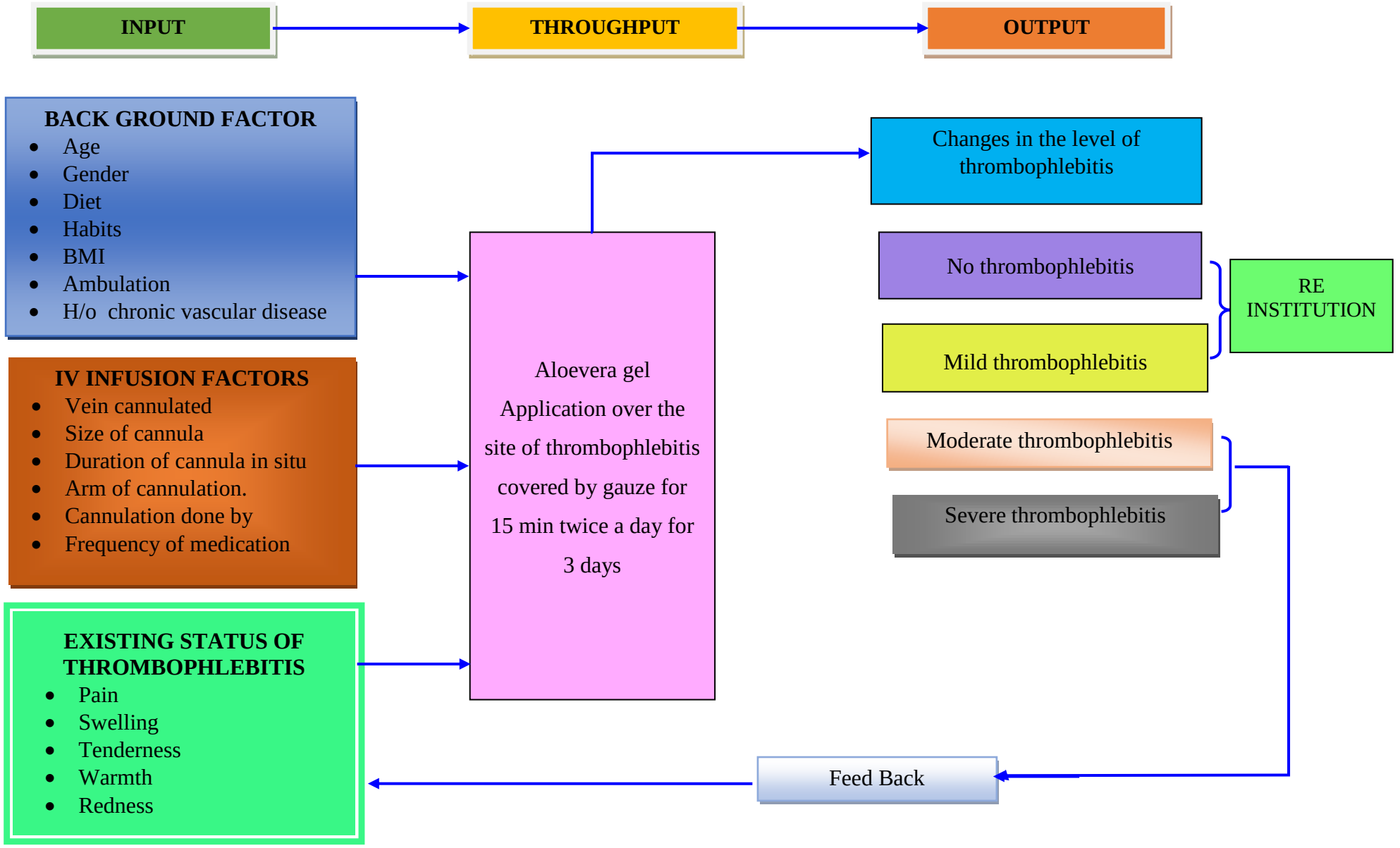


**FIGURE 1: LUDWIG VON BERTALANFFY'S (1968) GENERAL SYSTEM THEORY**

# CHAPTER - III

## RESEARCH METHODOLOGY

This chapter describes the methodology followed to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy in selected Hospital.

## RESEARCH APPROACH

Quantitative and evaluative research approach.

## RESEARCH DESIGN

True experimental – pre test and post test control group design

| | GROUP | PRE TEST | TREATMENT | POST TEST |
|---|---|---|---|---|
| R | EXPERIMENTAL GROUP | $O_1$ | X | $O_2$ |
| | CONTROL GROUP | $O_1$ | -- | $O_2$ |

R - Randomization

$O_1$ - Pre test assessment of thrombophlebitis

X - Application of Aloevera gel on thrombophlebitis

$O_2$ - Post test assessment of thrombophlebitis.

## VARIABLES

**Dependent variable** **:** Thrombophlebitis

**Independent variable** **:** Aloevera gel application

## SETTING OF THE STUDY

Medical and surgical wards in Sri Ram Hospital at Tirukovilur.

## POPULATION

Patients with thrombophlebitis after intravenous therapy.

## ACCESSIBLE POPULATION

Patients with thrombophlebitis admitted in Hospital at Tirukovilur.

## SAMPLE

Patients who developed thrombophlebitis after intravenous therapy.

## SAMPLING TECHNIQUE

Simple random sampling technique - Lottery method.

## SAMPLE SIZE

60 patients

30 patients in experimental group

30 patients in control group.

## DURATION OF THE STUDY

4 Weeks

## CRITERIA FOR SAMPLE SELECTION

## INCLUSION CRITERIA

1. Patients who have developed thrombophlebitis due to intravenous infusion and medication.
2. Patient admitted in wards
3. Adult patients
4. Patients who are willing to participate.

## EXCLUSION CRITERIA

1. Adult less than 18 years.
2. Patients who are not willing to participate in this study.
3. Patients receiving cancer Chemotherapy drugs.
4. Patients who had known skin allergy to aloevera gel.

## DESCRIPTION OF DATA COLLECTION TOOL

The investigator used a modified Visual Infusion Phlebitis Scale to assess the thrombophlebitis.

**Section I:** Comprise of questions to elicit demographic data.

**Section II:** Modified Visual Infusion Phlebitis scale. It consists of 5 components pain, swelling, warmth, redness and tenderness, each divided into 1 - 4 scores.

## SCORING AND GRADING PROCEDURE

**SCORING -** The observed condition of thrombophlebitis is given score as per description given in the scale. The score obtained by observation is graded as follows:

## GRADING PROCEDURE

| SCORE | | GRADE |
|---|---|---|
| 5 | : | No thrombophlebitis |
| 6-10 | : | Mild thrombophlebitis |
| 11-15 | : | Moderate thrombophlebitis |
| 16-20 | : | Severe trombophlebitis |

## CONTENT VALIDITY

For content validity the research experts were requested to give their opinion about the content areas and its relevance and appropriateness of the items. Content validity obtained from five experts in the department of medical and surgical nursing. Items were modified based on their suggestions.

## RELIABILITY

The researcher has adapted the standardized Visual Infusion Phlebitis scale. The reliability was not assessed as it was already established.

## DATA COLLECTION PROCEDURE

Data collection was done from 04.03.18 to 01.04.2018 at Sri Ram hospital Tirukovilur. Patients who received IV therapy were screened for thrombophlebitis and the samples were recruited by simple random sampling technique in the medical and surgical wards. The purpose of the study was explained, written consent was obtained from all patients before the study. Demographic data collected and the thrombophlebitis was assessed with modified Visual Infusion Phlebitis Scale as pre test on the first day. Aloevera gel application intervention over the site of thrombophlebitis for 15 minutes was done morning and evening 2 times a day for 3 days. Post test was done with the same scale on the fourth day. The researcher herself collected the data by using the observation method with help of Visual Infusion Phlebitis.

## PLAN FOR DATA ANALYSIS

It was planned to analyse the collected data by using descriptive and inferential statistics

## DESCRIPTIVE STATISTICS

Frequency and percentage distribution will be used to analyse the demographic variables and level of thrombophlebitis among hospitalized patients.

Mean and standard deviation to describe the thrombophlebitis.

## INFERENTIAL STATISTICS

The paired ‘t’ test will be used to assess the effectiveness within group and independent ‘t’ test will be used to assess the effectiveness of Aloevera gel application.

Chi square test will be used to find the association of post test scores with their selected demographic variables.

## ETHICAL CONSIDERATION

- The study was performed after getting approval from the dissertation ethical of committee of THANTHAI ROEVER COLLEGE OF NURSING.
- Permission was obtained from the chairman of Sri Ram hospital, Tirukovilur.
- The written consent was obtained from each study participant before collection the data.
- Confidentiality was maintained throughout the study.

## PILOT STUDY

The pilot study was done at private hospital from 7.12.2017 to 14.12.2017 to test the feasibility, relevance and practicability. Permission was sought from the Chairman Sri Ram hospital, Tirukovilur. The consent was obtained from all the samples after explaining the purpose of the study and their doubts were clarified. The pilot study was conducted among 10 patients, 5 in experimental group and 5 in control group, selected by simple random sample technique. The intervention of Aloevera gel application over the site of thrombophlebitis for 15 minutes, morning and evening 2 times a day for 3 days was done. Post test done with the same scale on the fourth day. The data analysis showed that the study was found to be feseable and it was decided to continue main study without any modifications.

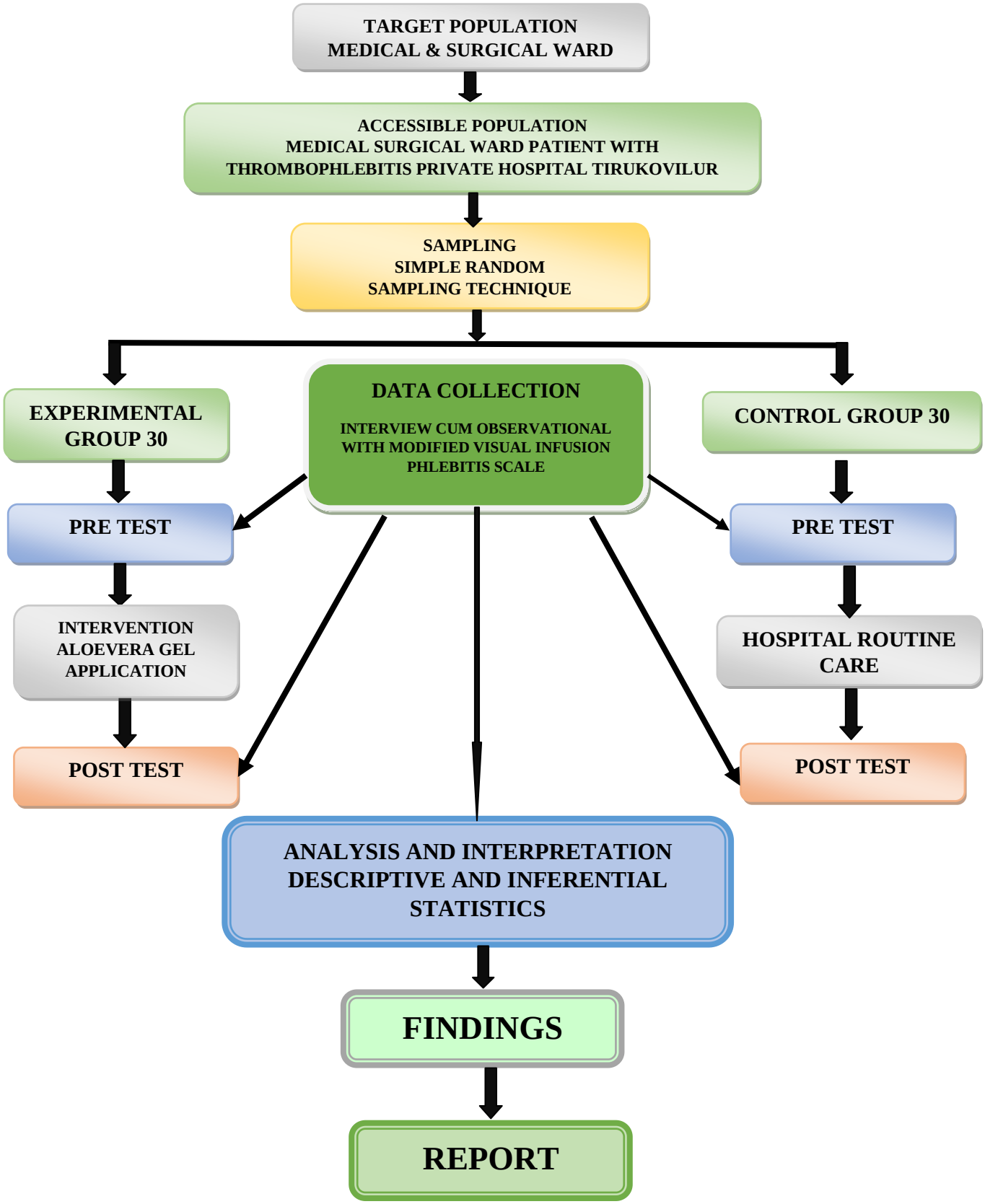


**FIG. 2 SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY**

# CHAPTER - IV

## DATA ANALYSIS AND INTERPRETATION

The analysis is a process of organizing and synthesizing the data in such a way that the research question can be answered and hypothesis tested.

This chapter deals with the analysis and interpretation of the data collected from 60 patients received intravenous therapy. The data were organized, tabulated and analysed according to the objectives. The findings are presented under the following sections.

## ORGANIZATION OF DATA

**SECTION I:** **Description of the demographic variables of the patients with thrombophlebitis who received intravenous therapy.**

**SECTION II:** **Pre and post test level of thrombophlebitis among patients received intravenous therapy in experimental and control group.**

**SECTION III:** **Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous therapy in experimental group and control group.**

**SECTION IV:** **Association of post test level of thrombophlebitis among patients received intravenous therapy with their selected demographic variables in the experimental group.**

## SECTION - I

**TABLE 1: Frequency and percentage distribution of demographic variables of the patients with thrombophlebitis received intravenous therapy.**

**N=60 (30+30)**

| Demographic variables | Exp group | | Control group | |
|---|---|---|---|---|
| | **No.** | **%** | **No.** | **%** |
| **Age in years** | | | | |
| 21-30 | 9 | 30% | 15 | 50% |
| 31-40 | 13 | 43.3% | 9 | 30 % |
| 41-50 | 7 | 23.3% | 6 | 20 % |
| 51-60 | 1 | 3.3% | 0 | 0 % |
| > 60 | 0 | 0% | 0 | 0% |
| **Gender** | | | | |
| Male | 17 | 56.6% | 17 | 56.6% |
| Female | 13 | 43.3% | 13 | 43.3% |
| **Diet pattern** | | | | |
| Vegetarian | 9 | 30% | 6 | 20% |
| Non Vegetarian | 21 | 70% | 24 | 80% |
| **Habits** | | | | |
| Cigarette smoking | 3 | 10% | 4 | 13.3% |
| Alcohol | 8 | 26.6% | 9 | 30% |
| Tobacco | 0 | 0.00 | 1 | 3.3% |
| None | 19 | 63.3% | 17 | 56.6% |
| **Body Mass Index** | | | | |
| Under weight | 0 | 0.00 | 2 | 6.6% |
| Normal | 19 | 63.3% | 18 | 60% |
| Over weight | 10 | 33.3% | 10 | 33.3% |
| Obesity | 1 | 3.3% | | |
| **Ambulation** | | | | |
| Mobilized | 24 | 80% | 25 | 83.3% |
| Partially mobilized | 5 | 16.6% | 4 | 13.3% |
| Immobilized | 1 | 3.3% | 1 | 3.3% |
| **Vein cannulated** | | | | |
| Basilic | 7 | 23.3% | 5 | 16.6% |
| Cephalic | 17 | 56.6% | 19 | 63.3% |
| Median vein forearm | 6 | 20% | 6 | 20% |

| | | | | |
|---|---|---|---|---|
| **Size of cannula** | | | | |
| 16 G | 0 | 0% | 0 | 0% |
| 18G | 11 | 36.6% | 12 | 40% |
| 20G | 17 | 56.6% | 15 | 50% |
| 22G | 2 | 6.6% | 3 | 10% |
| **Duration of cannula in situ** | | | | |
| < 2 days | 4 | 13.3% | 3 | 10% |
| 2-3 days | 14 | 46.6% | 13 | 43.3% |
| 3-5 days | 11 | 36.6% | 13 | 43.3% |
| > 5 days | 1 | 3.3% | 1 | 3.3% |
| **Arm of cannulation** | | | | |
| Right arm | 7 | 23.3% | 10 | 33.3% |
| Left arm | 23 | 76.6% | 20 | 66.6% |
| **Intravenous cannulation done by** | | | | |
| Registered nurse | 27 | 90% | 30 | 100% |
| Student nurse | 0 | 0.00 | 0 | 0.00 |
| Doctors | 3 | 10% | 0 | 0.00 |
| **Frequency of medication** | | | | |
| od | 0 | 0.00 | 5 | 16.6% |
| bd | 23 | 76.6% | 18 | 60% |
| tds | 7 | 23.3% | 7 | 23.3% |
| qid | 0 | 0.00 | 0 | 0.00 |
| **History of chronic vascular disease** | | | | |
| Yes | 1 | 3.3% | 2 | 6.6% |
| No | 29 | 97% | 28 | 93% |

Table 1 describes that in experimental group majority 13(43.3%) of patients were in the age group of 31 - 40 years, 9(30%) were in 21 - 30 years, 7(23.3%) were in 41 - 50 and 1(3.3%) in 51 - 60 years. Majority 17(56.6%) were male. The Majority 19(63.3%) had no bad habits, 8(26.6%) were alcoholic and 3(10%) were cigarette smokers. Majority 19(63.3%) had normal BMI, 10(33.3%) had over weight 1(3.3%) had obesity. Majority 24(80%) of patients had been mobilized and 5(16.6%) were partially immobilized and 1(3.3%) was immobilized. Majority 17(56.6%) were cannulated in cephalic

vein 7(23.3%) were basilic vein, 6(20%) were cannulated with median vein forearm. Majority 17(56.6%) had 20G size of cannula, 11(36.6%) had 18G, 2(6.6%) had 22G size of cannula. The majority 14(46.6%) had 2 - 3 days of cannula insitu, 11 (36.6%) had 3 - 5 days, 4 (13.3%) had < 2 days, 1(3.3%) had above 5 days of cannulation. The majority 23(76.6%) of patients had left arm cannulation. The majority 27(90%) of patients were cannulated by registered nurse, 3(10%) were done by doctors. The majority 23(76.6%) received bd frequency of medication 7 (23.3%) received tds. The majority 29 (97%) had no history of chronic vascular disease.

In Control Group majority 15(50%) of patients were in the age group of 21 - 30 years, 9(30%) were in the age group of 31 - 40 years and 6 (20%) were in 41 - 50 years of age group. The majority 17(56.6%) were male. The majority 24(80%) of patients were non vegetarian. The majority 17(56.6%) of patients had no bad habits, 9(30%) were alcoholic, 4(13.3%) were smokers and 1(3.3%) was tobacco user. The majority 18(60%) of patients had normal BMI, 10(33.3%) were overweight and 2 (6.6%) were under weight. The majority 25(83.3%) of patients had been mobilized, 4(13.3%) were partially mobilized and 1(3.3%) was immobilized. The majority 19(63.3%) were cannulated in cephalic vein, 6(20%) in median vein forearm and 5(16.6%) in basilic vein. The majority 15(50%) of patients had 20G size of cannula, 12(40%) had 18G size and 3(10%) had 22G. The majority of patients 13(43.3%) with equal representation of 2 - 3 days and 3 - 5 days duration of cannula in situ 3(10%) had < 2 days and 1(3.3%) had above 5 days. The majority 20(66.6%) of patients were cannulated in left arm. The majority 30 (100%) of patients were cannulated by registered nurse. The majority 18 (60%) of patients had bd frequency, 7(23.3%) had tds and 5(6.6%) had od frequency of medication. The majority 28(93 %) of patients had no history of chronic vascular disease.

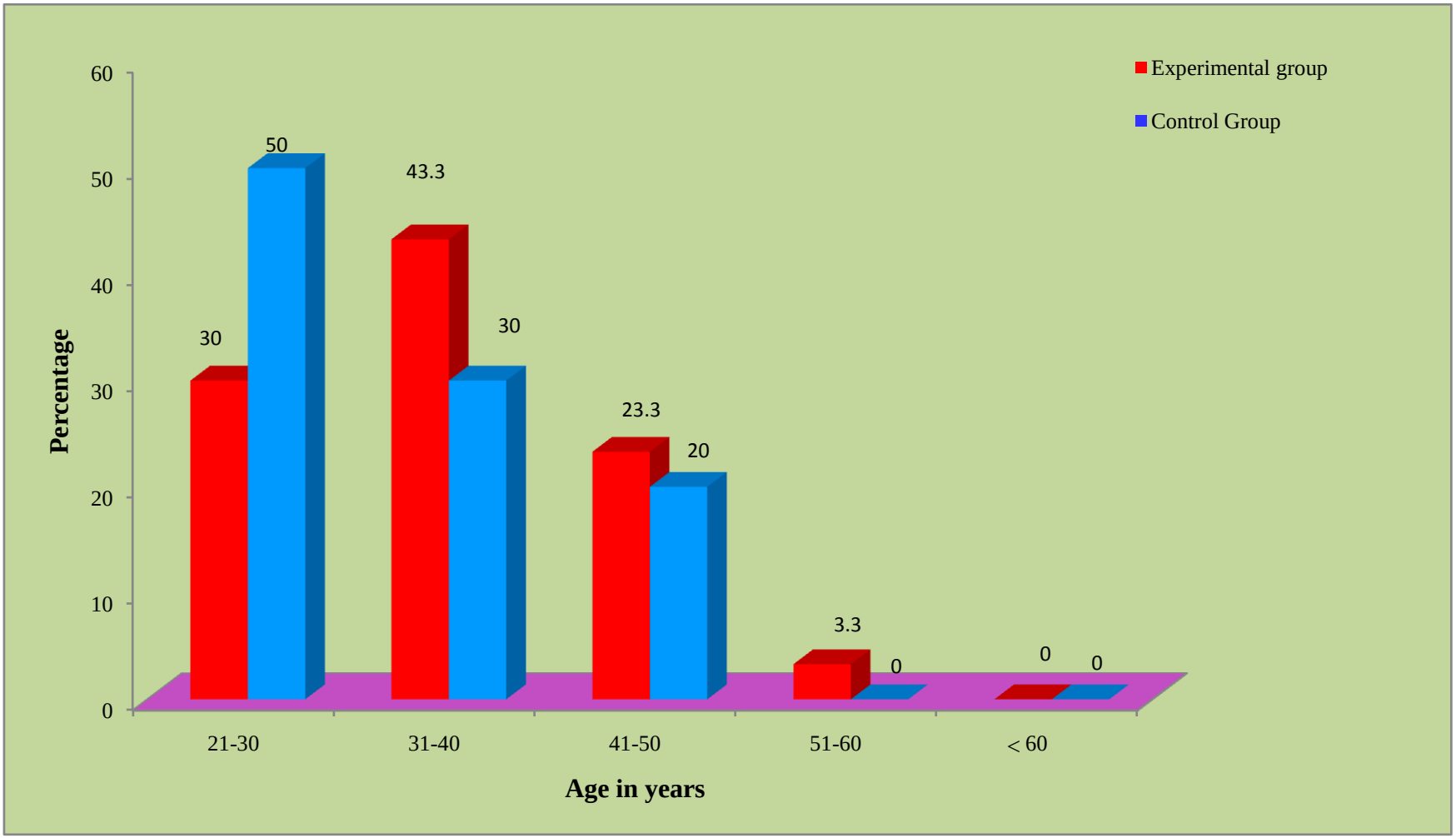


**Figure 3: Percentage distribution of age of patients with thrombophlebitis received intravenous therapy**

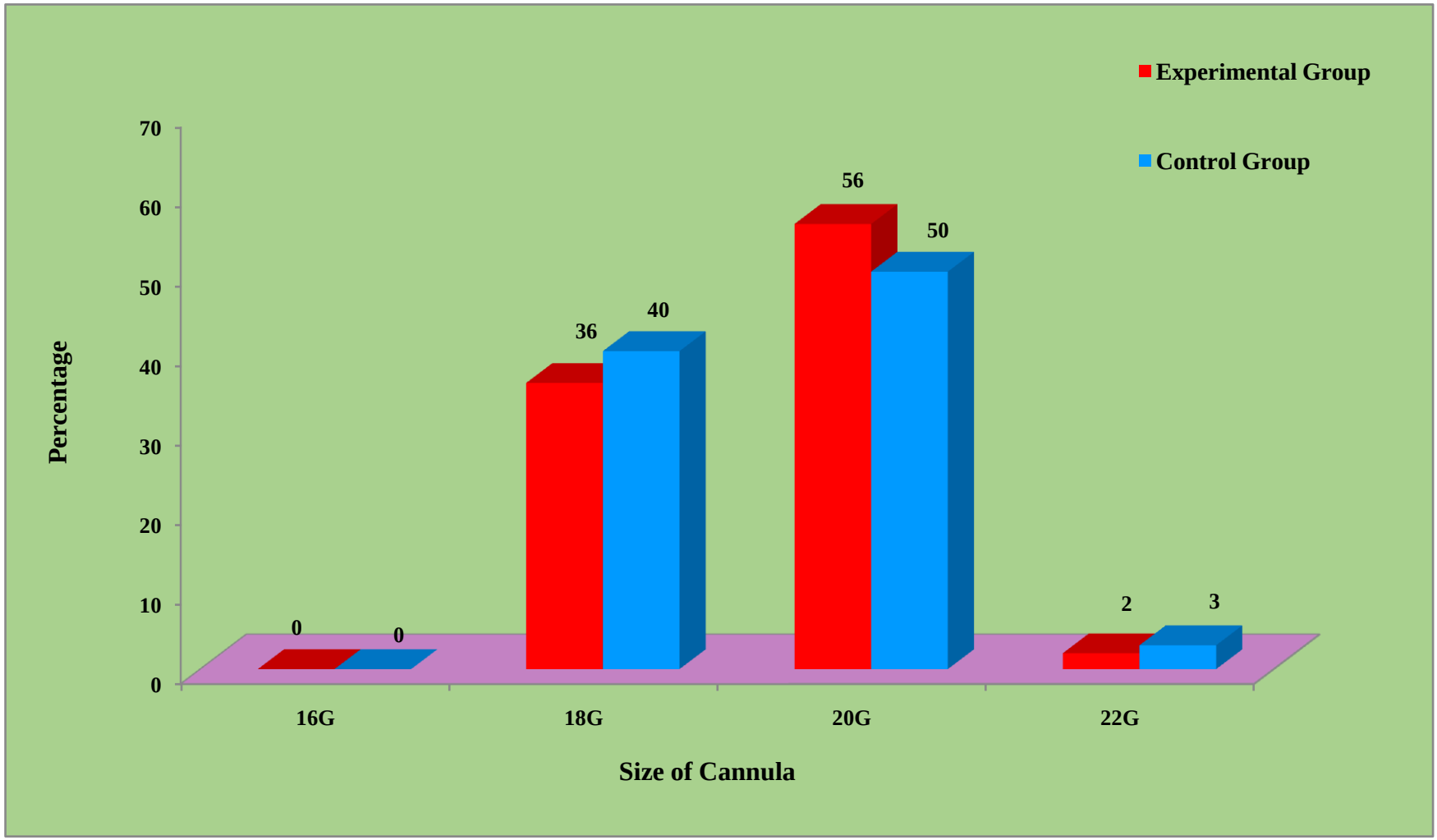


**Figure 4: Percentage distribution of size of cannula of patients with thrombophlebitis received intravenous therapy**

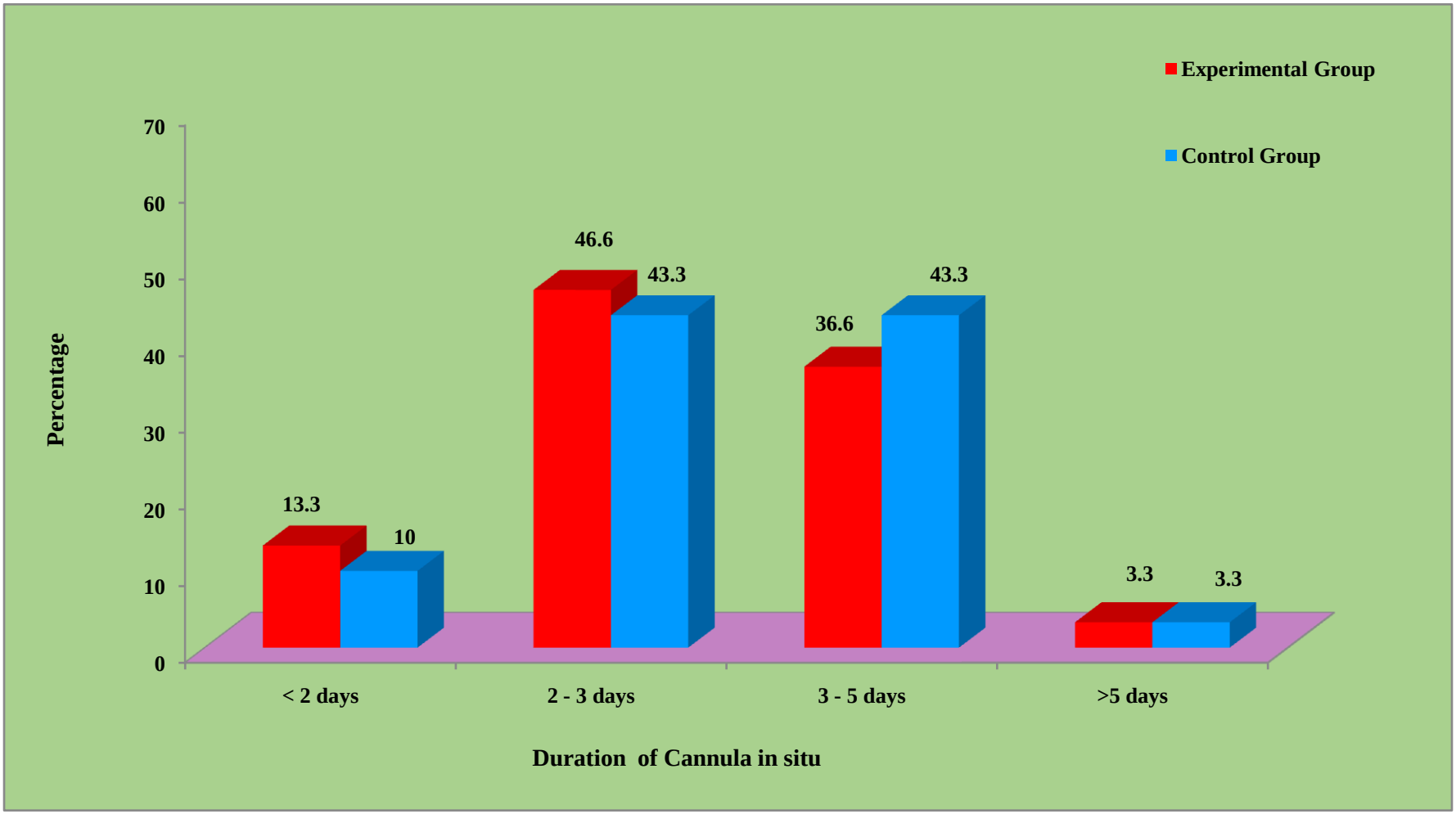


**Figure 5: Percentage distribution of duration of cannula in situ of patients with thrombophlebitis received Intravenous therapy**


**Figure 6: Percentage distribution of Arm of Cannulation of patients with Thrombophlebitis**

## SECTION - II

**TABLE 2 : Pre and post test level of thrombophlebitis among patients received intravenous therapy in experimental group.**

**N=30**

| Level of Thrombophlebitis | Pre test | | Post test | |
|---|---|---|---|---|
| | **No.** | **%** | **No.** | **%** |
| **No** | 0 | 0 | 11 | 36.6 % |
| **Mild** | 3 | 10% | 19 | 63.3% |
| **Moderate** | 18 | 60% | 0 | 0 |
| **Severe** | 9 | 30 % | 0 | 0 |

Table 2 shows that in pre test majority 18 (60%) had moderate, 9 (30%) had severe and 3 (10%) had mild level of thrombophlebitis in the experimental group.

In the post test, majority 19 (63.3%) had mild level of thrombophlebitis and 11 (36.6%) had no thrombophlebitis.

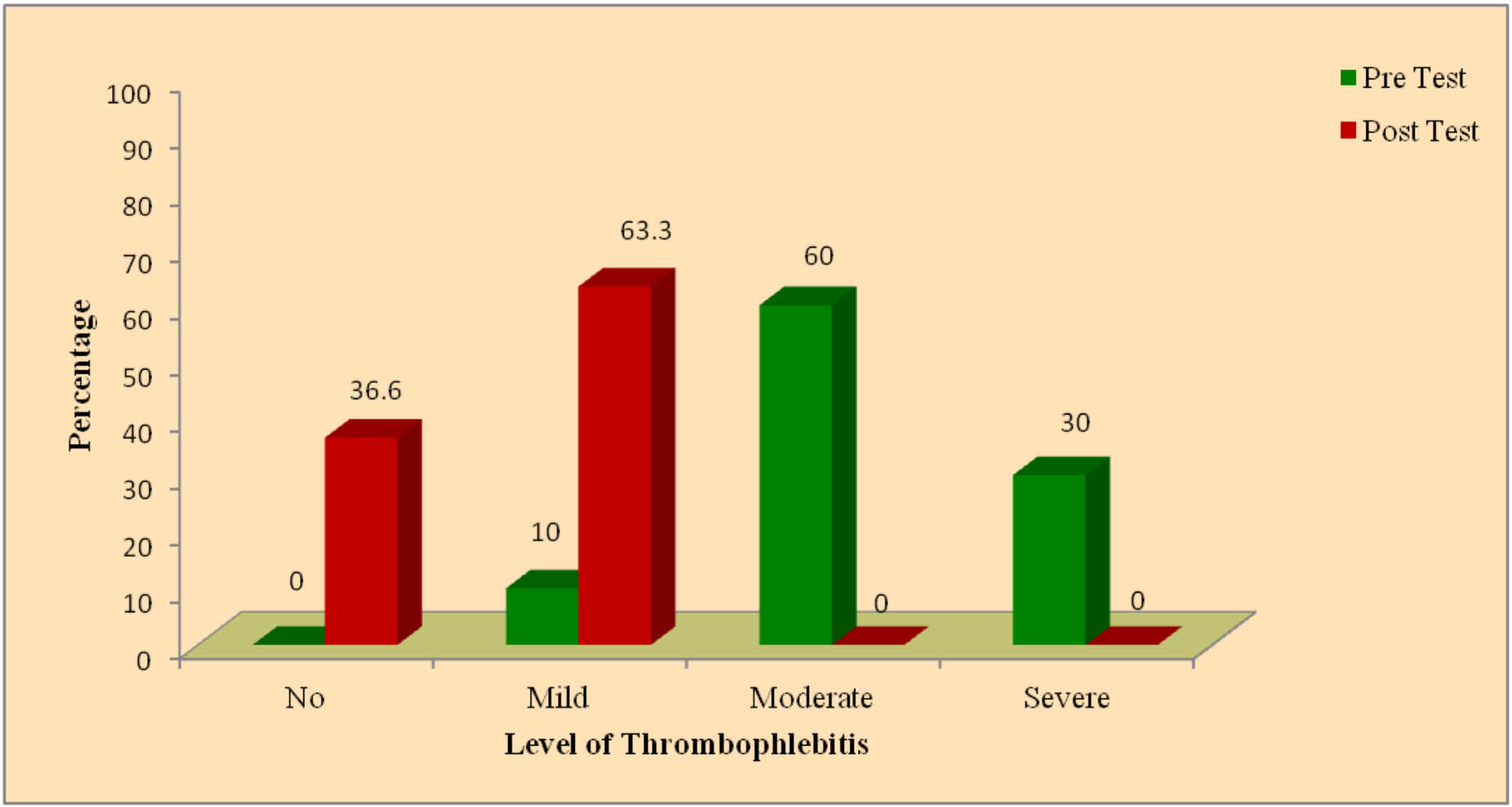


**Figure 7: Percentage distribution of level of thrombophlebitis among patients received Intravenous therapy in experimental group**

**TABLE 3 : Pre and post test level of thrombophlebitis among patient received intravenous therapy in control group.**

**N=30**

| Level of Thrombophlebitis | Pre test | | Post test | |
|---|---|---|---|---|
| | **No.** | **%** | **No.** | **%** |
| No | 0 | 0 | 0 | 0 |
| Mild | 1 | 3.3% | 27 | 90% |
| Moderate | 25 | 83.3% | 3 | 10% |
| Severe | 4 | 13.3% | 0 | 0 |

Table 3 shows that in the pre test majority 25 (83.3%) had moderate 4 (13.3%) had severe, 1 (3.3%) had mild level of thrombophlebitis in the control group.

In post test majority 27 (90%) had mild level of thrombophlebitis, 3 (10%) had moderate level of phlebitis.

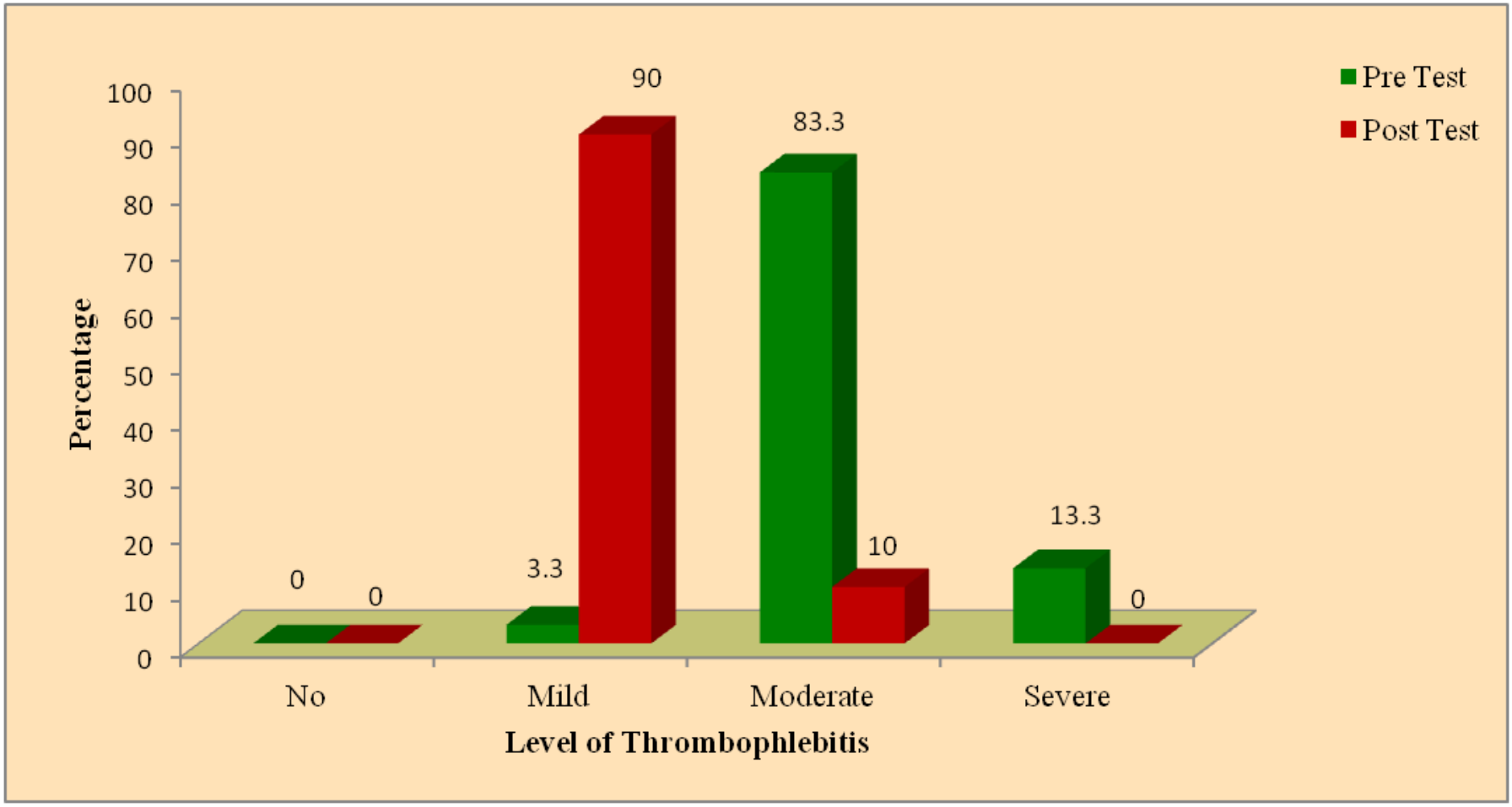


**Figure 8: Percentage distribution of level of thrombophlebitis among patients received Intravenous therapy in control group**

## SECTION – III

**TABLE 4: Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous therapy in experimental group.**

**N=30**

| Exp group | Max score | Mean | S.D | Mean diff | Paired 't' value |
|---|---|---|---|---|---|
| Pre test | 20 | 13.5 | 2.2 | 7.1 | 24.7 S*** |
| Post test | 20 | 6.4 | 1.2 | | |

***P< 0.001, (S – Significant)

Table 4 shows that the pre test mean score of thrombophlebitis in experimental group was 13.5±2.2 and the post test mean score was 6.4±1.2. The mean difference was 7.1 and the calculated paired 't' value 24.7 was found to be statistically significant at p< 0.001 level.

**TABLE 5 : Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous therapy in control group.**

**N=30**

| Control group | Max score | Mean | S.D | Mean diff | Paired 't' value |
|---|---|---|---|---|---|
| **Pre test** | 20 | 13.9 | 1.8 | 5.3 | 16.0 S*** |
| **Post test** | 20 | 8.6 | 1.2 | | |

***P< 0.001, (S - Significant)

Table 5 shows that the pre test mean score of thrombophlebitis in control group was 13.9±1.8 and the post test mean score was 8.6±1.2. The mean difference was 5.3 and the calculated paired 't' value 16.0 was found to be statistically significant at p<0.001 level.

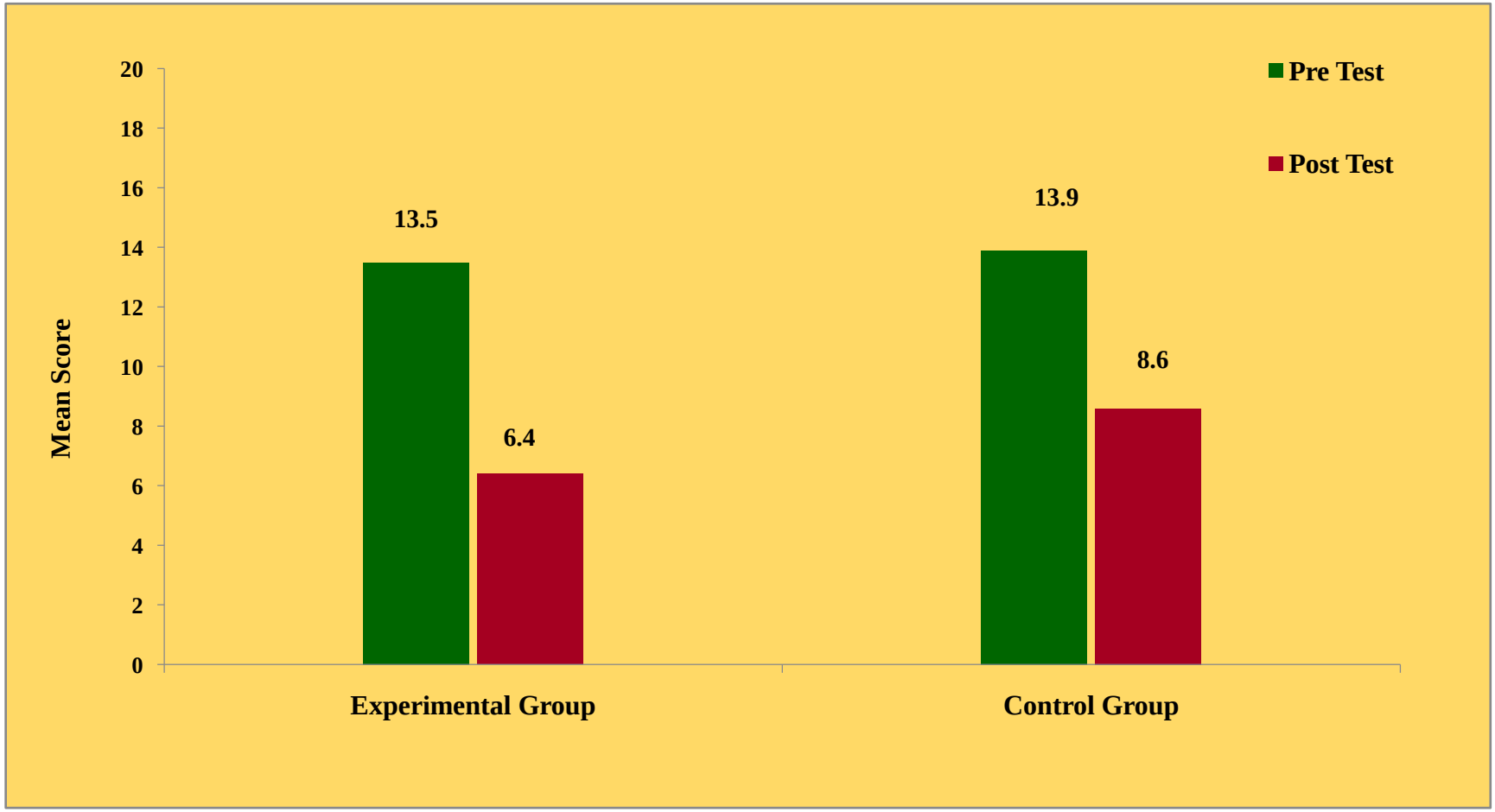


**Figure 9: Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous therapy in experimental group and control group**

**TABLE 6 : Comparison of post test mean score of thrombophlebitis among patients received intravenous therapy between the experimental and control group.**

**N=60 (30+30)**

| Group | Max score | Mean | SD | Mean diff | Un paired 't' value |
|---|---|---|---|---|---|
| **Exp group** | 20 | 6.4 | 1.2 | 2.2 | t=6.79 S*** |
| **Control group** | 20 | 8.6 | 1.2 | | |

***P<0.001, (S – Significant)

Table 6 shows that the post test mean score of thrombophlebitis in experimental group was 6.4±1.2 whereas in the control group the post test mean score was 8.6±1.2. The mean difference was 2.2 and the calculated unpaired 't' value 6.79 was found to be statistically significant at p<0.001 level.

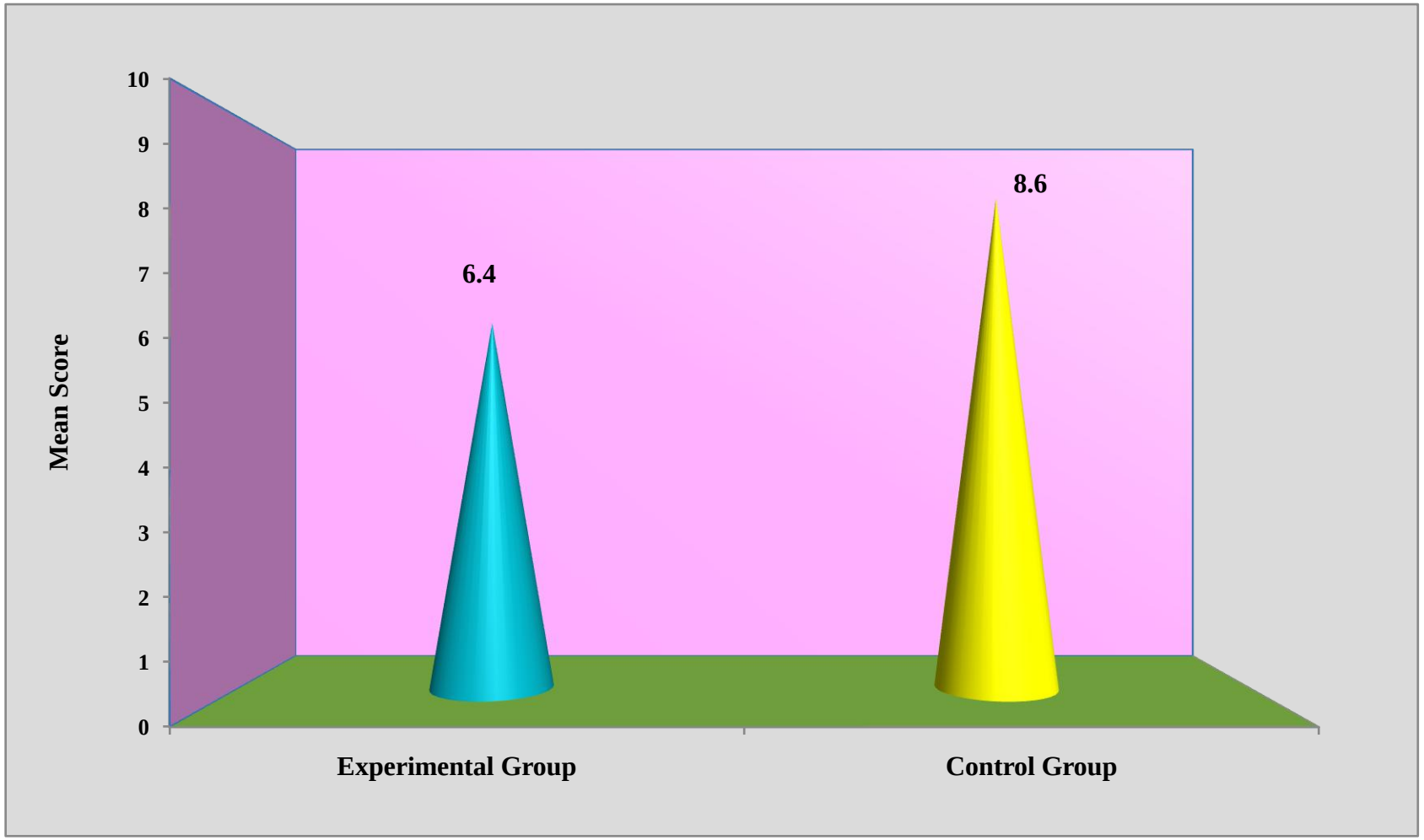


**Figure 10: Comparison of post test mean score of thrombophlebitis among patients received intravenous therapy in experimental group and control group**

## SECTION – IV

**TABLE 7: Association of post test level of thrombophlebitis among patients received intravenous therapy with their selected demographic variables in the experimental group.**

**N = 30**

| Demographic variables | No | | Mild | | Chi-square value |
|---|---|---|---|---|---|
| | No. | % | No. | % | |
| **Age in years** | | | | | |
| 21-30 | 4 | 13.33% | 7 | 23.33% | |
| 31-40 | 1 | 3.33% | 5 | 16.66% | $x^2$ = 3.143 |
| 41-50 | 1 | 3.33% | 2 | 6.66% | S* |
| 51-60 | 6 | 20% | 4 | 13.33% | |
| >60 | 0 | 0 | 0 | 0 | |
| **Gender** | | | | | |
| Male | 6 | 20% | 17 | 23.33% | $x^2$=0.4034 |
| female | 6 | 20% | 11 | 36.66% | NS |
| **Diet pattern** | | | | | |
| Vegetarian | 2 | 6.66% | 2 | 6.66% | $x^2$=0.192 |
| Non vegetarian | 10 | 33.33% | 16 | 53.33% | NS |
| **Habits** | | | | | |
| Smoking | 0 | 0.00% | 2 | 6.66% | $x^2$=3.409 |
| Alcohol | 1 | 3.33% | 4 | 13.33% | NS |
| Tobacco | 3 | 10% | 1 | 3.33% | |
| None | 8 | 26.66% | 11 | 36.66% | |
| **Body Mass Index** | | | | | |
| Under weight | 1 | 3.33% | 1 | 3.33% | $x^2$ = 0.090 |
| Normal | 9 | 30% | 14 | 46.66% | NS |
| Over weight | 0 | 0% | 0 | 0% | |
| Obese | 2 | 6.66% | 3 | 10% | |
| **Ambulation** | | | | | |
| Mobilized | 10 | 33.33% | 16 | 53.33% | $x^2$ = 1.581 |
| Partially mobilized | 1 | 3.33% | 2 | 6.66% | NS |
| Immobilized | 1 | 3.33% | 0 | 0% | |

| | | | | | |
|---|---|---|---|---|---|
| **Vein cannulated** | | | | | |
| Basilic vein | 3 | 10% | 3 | 10% | $x^2$ =0.847 |
| Cephalic vein | 4 | 13.33% | 9 | 30% | NS |
| Median vein forearm | 5 | 16.66% | 6 | 20% | |
| **Size of the cannula** | | | | | |
| 16G | 0 | 0% | 0 | 0% | $x^2$=2.910 |
| 18G | 7 | 23.33% | 10 | 33.33% | NS |
| 20G | 4 | 13.33% | 6 | 20% | |
| 22G | 1 | 3.33% | 2 | 6.66% | |
| **Duration of cannula in situ** | | | | | |
| <2 days | 1 | 3.33% | 6 | 20% | |
| 2-3 days | 8 | 26.66% | 10 | 33.33% | $x^2$ =2.910 |
| 3-5 days | 3 | 10% | 2 | 6.66% | S* |
| >5 days | 0 | 0% | 0 | 0% | |
| **Arm of cannulation** | | | | | $x^2$=0.555 |
| Right arm | 7 | 23.33% | 8 | 26.66% | NS |
| Left arm | 5 | 16.66% | 10 | 33.33% | |
| **IVcannulation done by** | | | | | $x^2$=1.551 |
| Registered nurse | 11 | 36.66% | 18 | 60% | NS |
| Student nurse | 0 | 0% | 0 | 0% | |
| doctors | 1 | 3.33% | 0 | 0% | |
| **Frequency of medication** | | | | | |
| Once in day | 0 | 0% | 0 | 0% | $x^2$ =0.031 |
| Twice in day | 9 | 30% | 14 | 46.66% | NS |
| Thrice in a day | 3 | 33.33% | 4 | 13.33% | |
| Every fourth hourly | 0 | 0% | 0 | 0% | |
| **History of chronic vascular disease** | | | | | $x^2$ =1.191 |
| Yes | 1 | 3.33% | 0 | 0% | NS |
| No | 11 | 36.66% | 18 | 0.66% | |

Table 7 shows that the demographic variables age in years and duration of cannula in situ have shown statistically significant association with the post test level of thrombophlebitis among patients received intra venous therapy at $p< 0.05$ level in the experimental group. Other demographic variables had not shown statistically significant association with the post test level of thrombophlebitis among patients received intravenous therapy.

# CHAPTER – V

## DISCUSSION

The main aim of "**The study was to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy at a selected hospital Tirukovilur".** The research design adopted for this study was true experimental pre test and post test control group design.

**The first objective of the study was to assess the level of thrombophlebitis among patients received intravenous therapy.**

In pre test majority 60% of the patients had moderate and 30% had severe level of thrombophlebitis in the experimental group. Whereas in the post test, majority 63.3% had mild and 36.6% had no thrombophlebitis.

In pre test the majority 83.3% of the patients had moderate and 13.3% had severe level of thrombophlebitis in the control group. Whereas in the post test, majority 90% had mild level and 10% had moderate level of thrombophlebitis.

**The second objective of the study was to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy.**

The pre test mean score of thrombophlebitis of the experimental group was 13.5±2.2 and the post test mean score was 6.4±1.2. The mean difference was 7.1 and the calculated paired 't' value 24.7 was found to be statistically significant at $p<0.001$ level.

The pre test mean score of thrombophlebitis in control group was 13.9±1.8 and the post test mean score was 8.6±1.2. The mean difference was 5.3 and the calculated paired 't' value 16.0 was found to be statistically significant at $p< 0.001$ level.

The post test mean score of thrombophlebitis in experimental group was 6.4±1.2 in the control group it was 8.6±1.2. The mean difference was 2.2 and the calculated unpaired ‘t’ value 6.79 was found to be statistically significant at $p<0.001$ level.

Based on the study findings the stated hypothesis

**H1: There is a significant reduction in thrombophlebitis among patients received intravenous therapy after aloevera gel application was accepted.**

**The third objective was to find association between the post test level of thrombophlebitis among patients received intravenous therapy with their selected demographic variables.**

The demographic variables age and duration of cannula in situ had shown statistically significant association with post test level of thrombophlebitis among patients received intravenous therapy at $p< 0.005$ level in the experimental group.

There was no significant association found between variables of gender, diet, habits, body mass index, ambulation, vein cannulated, size of cannula, arm of cannulation, cannulation done by, frequency of medication, chronic vascular disease and the post test level of thrombophlebitis.

Hence the stated hypothesis

**H2: There is a significant association between the post test level of thrombophlebitis among patients received intravenous therapy and their selected demographic variables was not accepted**.

# CHAPTER - VI

## SUMMARY, MAJOR FINDINGS, IMPLICATIONS, RECOMMENDATION AND CONCLUSION

This chapter was divided into two sections in the first section Summary of the study, findings, and conclusions were presented. In the second section, the implication in various areas of nursing practice, nursing education, nursing administration, nursing research and recommendation of further study were presented.

## SUMMARY OF THE STUDY

The main objective of the study was to assess the effectiveness of Aloevera gel application on thrombophlebitis among patient received intravenous therapy in private hospital at Tirukovilur.

A Quantitative evaluative approach, True experimental pre test - post test control group design were adopted for this study. Simple random sampling technique was used to select the sample and the sample size was 60. Conceptual frame Work-Ludwig Von Bertalanffy's general system model was used this study. The tool selected for the present study is modified Visual Infusion Phlebitis Scale to assess the thrombophlebitis among patient received intravenous therapy. The intervention of Aloevera gel application over the site of thrombophlebitis for 15 minutes, morning and evening twice a day for 3 days was done. Post test was done with the same scale on fourth day. The researcher herself collected the data by using Visual Infusion Phlebitis Scale.

The collected data were analysed by the descriptive and inferential statistics, interpreted in terms of objectives and hypotheses of the study. The study revealed that Aloevera gel application is effective in reduction of the thrombophlebitis among patient received intravenous therapy.

# I MAJOR FINDINGS OF THE STUDY

- Majority 43.3% of the patients in experimental group belongs to 31-40 years and 50% in control group belongs to age group of 21-30 years.
- Majority 56.6% of the patients were male in both the groups.
- Majority 70% of patients were non vegetarian in experimental group and 80% in control group.
- Majority 63.3% of patients had no bad habits in experimental group and 56.6% in control group.
- Majority 63.3% of patients in experimental group and 60% in control group had normal BMI.
- Majority 80% of patients in experimental group and 83.3% in control group had been mobilized.
- Majority 56.6% of patients in experimental group and 63.3% in control group were cannulated with cephalic vein.
- Majority 56.6% of patients in experimental group and 50% in control group were cannulated in 20G cannula.
- Majority 46.6% of patients in experimental group had 2-3 days duration of cannula in situ and equal representation 43.3% in control group had 2-3 days and 3-5 days.
- Majority 76.6% of patients in experimental group and 66.6% in control group were cannulated with left arm.
- Majority 90% of patients in experimental group and 100% in control group were cannulated by registered nurse.
- Majority 76.6% of patients in experimental group and 60% in control group had bd frequency of medication.
- Majority 97% of patients in experimental group and 93% in control group had no history of chronic vascular disease.

## II FINDINGS RELATED TO STUDY INTERVENTION

1. In the pre test, majority of the patients in the experimental group 60% had moderate level of thrombophlebitis where as in the post test, majority 63.3% had mild level of thrombophlebitis among patients in the experimental group with 36.6% no thrombophlebitis.

2. In the pre test, majority of the patients in the control group 83.3% had moderate level of thrombophlebitis where as in the post test, majority 90% had mild level of thrombophlebitis among patients in the control group.

3. In the pre test, mean score of thrombophlebitis in experimental group was 13.5±2.2 and the post test mean was 6.4±1.2. The mean difference was 7.1 and the calculated paired 't' value 24.7 was found to be statistically at $p< 0.001$ level.

4. In the pre test, mean score of thrombophlebitis in control group was 13.9±1.8 and the post test mean score was 8.6±1.2. The mean difference was 5.3 and the calculated paired 't' value 16.0 was found to be statistically significant at $p< 0.001$ level.

5. In the post test mean score of thrombophlebitis in experimental group was 6.4±1.2 whereas in the control group the post test mean score was 8.6±1.2. The mean difference was 2.2 and the calculated unpaired 't' value 6.79 was found to be statistically significant at $p<0.001$ level.

6. The demographic variables age in years and duration of cannula in situ had shown statistically significant association with the post test level of thrombophlebitis among patients received intravenous therapy at $p< 0.05$ level in the experimental group.

## IMPLICATIONS

The findings of the study have implication in various areas of nursing practice, nursing education, nursing administration and nursing research.

## IMPLICATIONS FOR NURSING PRACTICE

- The practice nurse uses the Aloevera gel application for thrombophlebitis to reduce it.
- Develop the skills are providing efficient nursing care for early thrombophlebitis and promote comfort.
- The nurse should contribute to the evidence based practice through the experience gained from Aloevera gel application to reduction in the thrombophlebitis.

## IMPLICATIONS FOR NURSING EDUCATION

- The nurse educator should be oriented, guided and trained in Aloevera gel application on thrombophlebitis among patients received intravenous therapy
- The student can be educated to Aloevera gel application to reduce the thrombophlebitis among patients received intravenous therapy is to be practiced.
- Provide adequate clinical exposure and supervise the students to give effective evidence based nursing care of thrombophlebitis.
- Encourage the student for effective utilization of research based practice.

## IMPLICATION FOR NURSING ADMINISTRATION

- Nursing administrator can formulate protocols and organize continuing nursing education programme on in-service education programme for health professional regarding the effectiveness of Aloevera gel application on thrombophlebitis among patient received intravenous therapy.

- ❖ Conduct in-service education program and continuing nursing education program for effective thrombophlebitis.
- ❖ Update their knowledge about current practices and treatment to effectiveness of Aloevera gel application to reduce the thrombophlebitis through the journals, conference and seminar.

## IMPLICATIONS OF NURSING RESEARCH

- ❖ Promote effective utilization of research findings on patient who have thrombophlebitis.
- ❖ Disseminate the findings of the research through conferences seminars and pubilishing in nursing journals
- ❖ The study can be conducted in larger population to generalize the findings.

## RECOMMENDATIONS

**The study recommends the following future research:**

- ❖ The similar study can be conducted in with larger samples for better generalizations.
- ❖ The study can be conducted two different settings with similar facilities.
- ❖ The study can be conducted in different age group of people.

## CONCLUSION

The purpose of this study was to assessed the effectiveness of Aloevera gel application on reducing thrombophlebitis among patient received intravenous therapy From the above findings, it evident that Aloevera gel application is effective in reducing thrombophlebitis among patients received intravenous therapy.

# BIBLIOGRAPHY

## BOOK REFERENCES


- Basavanthappa B.T "Nursing Research" 2007, 3rd ed, Banglore: Jaypee Brothers publication.130-140
- Black M.j.et al "Medical Surgical Nursing" 2005, 8th ed, Vol(1) Philapeiphia: W.B Saunders: 981
- Brunner and Suddarth's Text Book of Medical Surgical Nursing" 2014, 13th ed, Wolters kluver publishers, New Delhi: 1075-1076
- Lippincott "Manual of nursing practice" 10th ed, 2014 Wolters kluver publishers, New Delhi: 707-708.
- Carol et al, "Fundamentals of Nursing. 1st ed, 2000, "Philadelphia lippincott: 1153-1170.
- Kozier & Erb's (2008). Fundamentals of Nursing 8th ed, Dorling Kindersley Publishers. New Delhi.
- Krozec C. Nursing Procedures. Pennsylvania: Springhouse Corporation. 1992: 269-273.
- Lewis L.S "Medical Surgical Nursing" 2nd ed 2011, Elsevier Publisher: 912-914.
- Linda D Urden, "Critical care Nursing" 6th edition, 2011, Mosby Elsevier publication. P: 336-337.
- Potter A Patricia, Perry Griffin Anne, "Fundamentals of Nursing", 6th ed, 2008, New Delhi. Elsevier Publisher; 799-822.
- Polit Beck. "Essentials of nursing Research" 7th edition, 2010, Wolters Kluwer publication New Delhi: 337-369.
- Roasundar "An Introduction to Biostatics" 1996 New Hall of India Publishers. New Delhi.
- Suresh K Sharma. "Nursing Research and Statistics" 2012, 2nd ed Elesevier publication, India: 93-143.

## JOURNAL REFERENCE

1] Yulu. Gao Meta analysis of Aloevera for the prevention and treatment of chemotherapy induced phlebitis Nursing Journal of India, (2016).

2] Everitt, N.J. and McMohan, M.J. Influence of fine-bore catheter length on infusion thrombophlebitis in peripheral Intravenous nutritional support services, (1997).

3] Lanbeck, P.et al. Perception of risk factors for infusion phlebitis among Swedish nurses: a questionnaire study. Journal of infusion Nursing, (2004).

4] Madan, M., Alexandar, D.J. and Mc Mohan, M.J. Influence of catheter Type on occurrence of thrombophlebitis during peripheral intravenous nutrition.Lancet, 1992; 339.

5] Parker, Lynn. IV device and related infections : causes and complications British Journal of Nursing, 1999; 89 (22)

6] Trehan, N.et al. The effect of cannula material on the incidence of peripheral venous thrombophlebitis. Anesthesia, 2007; 62 (11)

7] Tagalakis,V. The epidemiology of peripheral vein infusion thrombophlebitis. American Journal of Medicine, 2002;113 (2)

8] Wilson, J.A. Preventing infection during IV therapy. Professional Nurse, 199; 9(6).

## NET REFERENCE


- http://www.ukessays.com>essays
- Cochrane library.wiley.com>doc>full
- http://www.ncbi.nim.nib.gov>pubmed
- https://www.researchgate.net>publication
- https://www.rguhs.ac.in>onlinecdc
- https://www.ijcem.com>files ijcem 0023233
- http://www.journal ura.com> article international journal of current research
- https://doi.org/10.2611/theicph.20
- https://www.semantic scholar.org
- https://ncbi.nlm.nih.gov
- online library.wiley.com
- https://www.pubmed.com
- https://www.medscape.com
- https://www.medline.com
- https://www.google.co.in

# ANNEXURE - I

## LETTER SEEKING EXPERT'S OPINION FOR CONTENT VALIDITY

**From**

Reg.No.301611703,
II -Year M.Sc (Nursing),
Thanthai Roever College of Nursing,
Perambalur-621212.

**To**

**Respected Sir / Madam,**

**Sub:** Requisition for content validity of tool regarding.

I am doing M.Sc (Nursing) II Year in Thanthai Roever College of Nursing, Perambalur, under the Tamilnadu, Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of my M.sc (Nursing) Degree Programme, I am conducting a research on **"A study to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy in selected hospitals at Tirukovilur".** A tool has been developed for the research study. I am submitting the above stated for your valuable opinion, I will be thankful for your kind consideration. Kindly return it to the undersigned.

**Thanking you**

Yours Sincerely,

Place: Reg.No.301611703

Date:

# ANNEXURE - II

## LIST OF EXPERT'S OPINION FOR CONTENT VALIDITY OF RESEARCH TOOL

**1. Prof.R.Punithavathi M.Sc. (N),**

Principal,

Thanthai Roever College of Nursing,

Perambalur.

**2. Prof.V.J.Elizabeth M.Sc. (N),**

Vice principal,

Thanthai Roever College of Nursing,

Perambalur.

**3. Prof.R.Reena M.Sc. (N), Ph.D,**

Principal,

Tagore College of Nursing,

Chennai.

**4. Prof. R.Umarani M.Sc. (N), M.S, Ph.D,**

Principal,

Sri Vijay Vidhalaya College of Nursing,

Dharmapuri.

**5. Mrs. V. Manopriya M.Sc. (N), M.B.A,**

Assistant professor

Kasturba Gandhi College of Nursing,

Puducherry

**6. Mrs. S. Shyamala Grace M.Sc. (N),**

Associate professor,

Dhanalakshmi College of Nursing,

Perambalur.

# ANNEXURE - III

## EVALUATION CRITERIA CHECK LIST FOR VALIDATION

### INTRODUCTION

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly place tick mark in the appropriate column and give remarks.

**Interpretation of column:**

Column I : Meets the criteria

Column II : Partially meet the criteria

Column III : Does not meet the criteria

| S.NO | Criteria | 1 | 2 | 3 | Remarks |
|---|---|---|---|---|---|
| 1 | Scoring<br>• Adequacy<br>• Clarity<br>• Simplicity | | | | |
| 2 | Content<br>• Logical sequence<br>• Adequacy<br>• Relevance | | | | |
| 3 | Language<br>• Appropriate<br>• Clarity<br>• Simplicity | | | | |
| 4 | Practicability<br>• It is easy to score<br>• Does it precisely<br>• Utility | | | | |

Signature :

Name :

Designation :

Address : Any other suggestion

# ANNEXURE - IV

## PERMISSION LETTER FOR RESEARCH PURPOSE

**From**

Reg.No.301611703,
II - YearM.Sc. (Nursing),
Thanthai Roever College of Nursing,
Perambalur.

**Through**

**The Principal,**
Thanthai Roever College of Nursing,
Perambalur.

**To**

**The Chairman,**
Sri Ram Hospital,
Thirukovilur.

**Respected Sir / Madam,**

**Sub :** Requisition for granting permission regarding

I am doing M.Sc. (Nursing) II Year in Thanthai Roever College of Nursing, Perambalur. Under **the Tamilnadu Dr. M.G.R. Medical University, Chennai**. As a partial fulfillment of my M.Sc. (Nursing) Degree Programme, I am going to conduct **"A study to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy"** in selected hospital at Tirukovilur. I would like to conduct the data collection at your esteemed institution. Hence, I kindly request you to grant me permission to conduct my study in our Hospital.

**Thanking you**

Place: Yours Sincerely,
Date: Reg.No.301611703

# ANNEXURE – V

## CERTIFICATE OF ENGLISH EDITING

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Reg No: 301611703**, II-Year M.Sc. [Nursing] student of Thanthai Roever College of Nursing has done a dissertation study on **"A study to assess the effectiveness of Aloevera gel application on thrombophlebitis among patients received intravenous therapy"** in selected hospital at Tirukovilur. This study was edited for English language appropriateness.

Signature

# ANNEXURE - VI

## ஒப்புதல் படிவம்

பெரம்பலூர் தந்தை ரோவர் செவிலியர் கல்லூரியில் முதுகலை செவிலிய பட்டபடிப்பு பயிலும் பதிவு எண்: **301611703** அவர்களால் நடத்தப்படுகின்ற சிரை அழற்சி சம்பந்தமான ஆராய்ச்சி நோக்கத்தினை பற்றியும், சிகிச்சை பற்றிய விளக்கமும் எனக்கு தெளிவாக தெரிவிக்கப்பட்டது. இதில் கற்றாழை பசை சிரை அழற்சி மேல் தடவுவதற்க்கு நான் சம்மதிக்கிறேன். இதில் பங்கேற்பதற்கு எனக்கு எந்த ஆட்சேபனையும் இல்லை. மேலும் இந்த விவரங்களை வெளியிடுவதற்கும் அச்சிடுவதற்கும் முழு சம்மதம் அளிக்கிறேன்.

கையெழுத்து,

பெயர்:

தேதி:

இடம்:

# ANNEXURE - VII

## DATA COLLECTION TOOL

## SECTION-A DEMOGRAPHIC DATA

**Kindly furnish the following details by placing a tick mark in appropriate choice.**

**1. AGE IN YEARS**

a. 21 – 30 ☐ b. 31 – 40 ☐

c. 41 – 50 ☐ d. 51 – 60 ☐

e. > 60 ☐

**2. GENDER**

a. Male ☐ b. Female ☐

**3. DIET PATTERN**

a. Vegetarian ☐ b. Non Vegetarian ☐

**4. HABITS**

a. Cigarette Smoking ☐ b. Alcohol ☐

c. Tobacco ☐ d. None ☐

**5. BODY MASS INDEX**

a. Under Weight ☐ b. Normal ☐

c. Over weight ☐ d. Obese ☐

**6. AMBULATION**

a. Mobilized ☐ b. Partially Mobilized ☐

c. Immobilized ☐

**7. VEIN CANNULATED**

a. Basilic Vein ☐ b. Cephalic Vein ☐

c. Median Vein forearm ☐

**8. SIZE OF THE CANNULA**

a. 16G ☐ b. 18G ☐

c. 20G ☐ d. 22G ☐

**9. DURATION OF CANNULA IN SITU**

a. <2 days ☐ b. 2-3 days ☐

c. 3-5 days ☐ d. >5 days ☐

**10. ARM OF CANNULATION**

a. Right arm ☐ b. Left arm ☐

**11. INTRAVENOUS CANNULATION DONE BY**

a. Registered nurse ☐ b. Student nurse ☐

c. Doctors ☐

**12. FREQUENCY OF MEDICATION**

a. Once a day ☐ b. Twice a day ☐

c. Thrice a day ☐ d. Every fourth hourly ☐

**13. HISTORY OF CHRONIC VASCULAR DISEASE**

a. Yes ☐ b. No ☐

# SECTION – B

## MODIFIED VISUAL INFUSION PHLEBITIS SCALE

| S. NO | CRITERIA | 1 | 2 | 3 | 4 | OBTAINED SCORE |
|---|---|---|---|---|---|---|
| 1 | PAIN | Not experiencing pain | Experiencing pain by touching | Experiencing pain by movement | Experiencing pain while at rest | |
| 2 | SWELLING | Not present | Up to 1 cm around the site of insertion | < 2cm in proximal/ distal area | < 4cm proximal/ distal area | |
| 3 | TENDERNESS | Not present | Up to 1cm around the site of insertion | <2cm in proximal/ distal area | <4cm in proximal /distal area | |
| 4 | WARMTH | Not present | Mild | Moderate | Severe | |
| 5 | REDNESS | Not present | Mild | Moderate | Severe | |

**GRADING**

5 - No thrombophlebitis

6 – 10 - Mild thrombophlebitis

11 – 15 - Moderate thrombophlebitis

16 – 20 - Severe thrombophlebitis